High Doses of Statins and Stroke Outcome

To the Editor:

In the November issue of Stroke, Goldstein et al\(^1\) report a post hoc analysis about the Stroke Prevention by Aggressive Reduction in Cholesterol Levels (SPARCL) trial that explores whether treatment with 80 mg atorvastatin per day favorably shifts the distribution of severities of ischemic cerebrovascular outcomes. The authors conclude that the outcome of recurrent ischemic cerebrovascular events might be improved among statin users as compared with nonusers.

Many experimental studies have reported the pleiotropic effects of statins, including antioxidant properties, immunomodulatory actions, improvement of endothelial function, increasing nitric oxide bioavailability, promoting atherosclerotic plaque stabilization, and inhibiting inflammatory responses, and these effects might have benefits in brain protection and stroke recovery.\(^2\) Indeed, the statin therapy discontinuation during the acute phase of an ischemic stroke is associated with poor neurological outcome and increased brain injury.\(^3\)

The SPARCL study presents valuable clinical information about the effects of atorvastatin on stroke outcomes when analyzing the recurrences in this trial of secondary stroke prevention. The authors evaluate the stroke severity by means of functional status at 90 days and they mention as an important study limitation the lack of information about neurological status in the acute phase of the ischemic stroke. Moreover, it is unknown if the variability in stroke management, in-hospital complications, and poststroke rehabilitation between atorvastatin users and nonusers could be affecting poststroke functional outcome.

Our group has previously analyzed the effect of pretreatment with statins in the ischemic stroke outcome of a series of 2742 in-hospital patients with the same acute stroke management protocol.\(^4\) The logistic regression analyses, adjusted by stroke severity and in-hospital complications, showed that previous treatment with statins was an independent predictor for better outcome at discharge measured by a modified Rankin Scale <2. Our study also showed that patients taking statins presented lesser stroke severity on admission, although they have a higher burden of vascular risk factors.

On the other hand, the SPARCL trial included small vessel disease and atherothrombotic strokes but excluded patients with cardioembolic sources of stroke. This selection does not allow to establish the effect of statins in stroke severity among the different etiologic subtypes. Nevertheless, our study included atherothrombotic, lacunar, and cardioembolic infarctions, infarctions' unusual cause, and infarctions of undetermined origin. The subgroup analysis showed that statins remained as an independent factor for better outcome in atherothrombotic and small vessel disease strokes, but not in the other stroke subtypes.\(^5\) The effect of statins on cerebral endothelial function\(^6\) could explain, at least partially, its protective cerebral effect on arterial origin ischemia.

Further trials are needed to demonstrate if statins have a cerebral protective effect on ischemic acute stroke and which stroke subtypes will be benefited the most.

Disclosures

None.

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